

2.1.4 Community Impacts

2.1.4.1 Community Character and Cohesion

Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969, as amended, established that the federal government use all practicable means to ensure that all Americans have safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 U.S.C. 4331[b][2]). The Federal Highway Administration (FHWA), in its implementation of NEPA (23 CFR 109[h]), directs that final decisions on projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Under the California Environmental Quality Act (CEQA), an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

Affected Environment

Data sources used to inform analysis done in this section include the 2010-2014 American Community Survey (U.S. Census Bureau, 2014) and Southern California Association of Government (SCAG)'s 2040 growth projections included in the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

Community character is all of the attributes, including social and economic characteristics, and assets that make a community unique and that establish a sense of place for its residents. Community cohesion is the degree to which residents have a "sense of belonging" to their neighborhood, a level of commitment to the community, or a strong attachment to neighbors, groups, and institutions, usually because of continued association over time. In general, the impacts of transportation projects can be more disruptive to areas characterized by cohesive communities due to the linear, and potentially dissecting, nature of many projects. Some specific indicators of community cohesion include:

- **Ethnicity.** Ethnically homogenous areas are often highly cohesive because the community is often linked through common traditions, values, and languages.

- **Income and Poverty.** Lifestyle choices that prompt interaction and build community, such as schooling and education, shopping, employment, recreation, community service utilization, and other activities, are often determined by financial status.
- **Age.** Areas with larger populations of the elderly and stay-at-home parents tend to be more cohesive because these groups are oftentimes more active in their communities.
- **Occupancy.** Areas with high vacancy rates are less likely to have a strong sense of cohesion.
- **Housing Tenure.** There tends to be a stronger sense of cohesion in areas where residents have lived there for longer periods of time.
- **Homeownership.** Purchasing a home is making an investment in a community, and homeowners are more likely to be active in the community, leading to greater cohesion in areas with high homeownership rates.
- **Household Size.** Single-person households tend to correlate with lower cohesion compared to communities composed of households with two or more people.
- **Employment and Income.** Employment status can lead to community cohesion through interaction at work, as well as through lifestyle choices associated with income.
- **Business Activity.** Community character is often built by frequent interaction with neighbors, which can frequently occur at business centers while shopping, dining, or working.
- **Community Services and Facilities.** Schools, community centers, and other public facilities are important to neighborhood identity and serve as important gathering and meeting facilities for communities.

The study area for community impacts includes the area within the project limits that would be directly affected and the populations and communities most likely to experience the potential impacts of fragmentation from physical improvements associated with the project. The study area and population densities for each Census tract evaluated as part of this analysis are shown in Figure 2.1.4-1.



The Census tracts in the study area fall within multiple jurisdictions, including the cities of Irvine, Costa Mesa, Santa Ana, Newport Beach, Tustin, Laguna Woods, Laguna Hills, Lake Forest, and some unincorporated areas of Orange County. All cities are located within Orange County. Table 2.1.4-1 lists the affected study area Census tracts and the associated jurisdictions. Though the Census tracts themselves extend into a very large range of jurisdictions, for the purposes of the analysis conducted with regards to community character and cohesion for the proposed project, only impacts to the cities within the study boundaries (0.5-mile radius of the project area) were considered. Within the study area are the cities of Irvine, Costa Mesa, Santa Ana, and unincorporated Orange County. These jurisdictions were examined to establish a context for comparison of distinct community characteristics that may be indicative of a community with strong cohesion.

Table 2.1.4-1. Study Area Census Tracts

Census Tract	Jurisdiction
626.21	Irvine, Lake Forest
524.10	Irvine, Laguna Woods, Laguna Hills
525.14	Irvine, Unincorporated Orange County
525.17	Irvine
525.18	Irvine
525.19	Irvine
525.20	Irvine
525.23	Irvine
626.11	Irvine
626.12	Irvine
626.04	Irvine
626.30	Irvine
626.10	Irvine, Newport Beach, Costa Mesa, Unincorporated Orange County
755.15	Irvine, Santa Ana, Tustin, Unincorporated Orange County

Source: U.S. Census Bureau, 2014.

Neighborhoods

Though the City of Irvine Planning Department does not formally delineate neighborhood boundaries, some neighborhoods in the project area can be locally identified by the system of planned Irvine Company villages within the city. Coupled with neighborhood research data

retrieved from www.city-data.com, the build alternatives traverse eight primarily City of Irvine neighborhoods (Irvine Company, 2017; Urban Mapping, Inc., 2017).

Irvine Spectrum Neighborhood

The Irvine Spectrum Neighborhood encompasses approximately 6.38 square miles bound by Orange County Great Park on the north; Sand Canyon Avenue on the west; I-405, Irvine Center Drive, and Lake Forest Drive on the south; and Bake Parkway on the east. Sitting at the I-5/I-405 interchange, this neighborhood consists primarily of commercial and medical and science land uses, with the Irvine Spectrum Center shopping center serving as a primary destination in the neighborhood. The neighborhood is home to approximately 8,927 people and has a population density of approximately 1,399 people per square mile.

Quail Hill

The Quail Hill neighborhood is a suburban housing development by the Irvine Company south of I-405 that encompasses approximately 1.01 square miles bound by I-405 on the north, the Quail Hill and Bommer Canyon open space preserves on the west and south, and SR-133 on the east. This primarily residential neighborhood is home to approximately 605 people, with a population density of 605 people per square mile.

Oak Creek

The Oak Creek neighborhood north of I-405 encompasses 1.87 square miles bound by I-5 on the north, Jeffrey Road on the west, I-405 on the south, and Sand Canyon Avenue on the east. The southern portion of the neighborhood near I-405 consists of primarily medium- to high-density residential land uses and is home to approximately 8,696 people, with a population density of 4,654 people per square mile.

Woodbridge

The Woodbridge neighborhood is north of I-405 and encompasses approximately 2.65 square miles bound by Irvine Center Drive on the north, Culver Drive on the west, I-405 on the south, and Jeffrey Road on the east. The neighborhood, built around two artificial lakes, consists primarily of residential neighborhood and related land uses and is home to approximately 27,418 people, with a population density of 10,362 people per square mile.

University Park

The University Park neighborhood south of I-405 encompasses 0.95 square mile bound by I-405 on the north, Culver Drive on the west, and University Drive on the south and east. The

neighborhood consists of primarily low-density residential land uses and is home to approximately 8,809 people, with a population density of 9,306 people per square mile.

Westpark

The Westpark neighborhood north of I-405 encompasses 0.89 square mile bound by Irvine Center Drive on the north, San Diego Creek on the west, I-405 on the south, and Culver Drive on the east. Except for Irvine City Hall and neighborhood shopping centers, the neighborhood consists of primarily low- to high-density residential land uses and is home to approximately 9,016 people, with a population density of 10,157 people per square mile.

Rancho San Joaquin

The Rancho San Joaquin neighborhood south of I-405 encompasses 0.51 square mile bound by I-405 on the north, San Diego Creek on the west, University Drive on the south, and Culver Drive on the east. The most dominant feature of the neighborhood is the 18-hole Rancho San Joaquin golf course. It is surrounded by medium- to high-density residential land uses and is home to approximately 3,717 people, with a population density of 7,358 people per square mile.

Irvine Business Complex

The Irvine Business Complex encompasses 4.335 square miles traversed by I-405 and bound by the former Tustin Marine Corps Air Station on the north; SR-55 on the west; John Wayne Airport and Campus Drive on the south; and San Diego Creek on the east. The most prominent land use in the neighborhood is office space, with substantial amounts of high-density residential land uses that house approximately 7,802 people, with a population density of 1,800 people per square mile.

Ethnic and Racial Demographics

The ethnic and racial demographic characteristics of the communities and Census tracts located within the study area are shown in Table 2.1.4-2.

Table 2.1.4-2. Race and Ethnicity in the Study Area

Jurisdiction/ Census Tract	Total Population	White, Non-Hispanic (%)	Hispanic or Latino (%)	African American (%)	American Indian (%)	Asian (%)	Native Hawaiian or Pacific Islander (%)	Some Other Race Alone (%)	Two or More Races (%)
Orange County	3,086,331	42.89	34.05	1.53	0.20	18.46	0.28	0.17	2.43
Irvine	229,850	44.45	9.87	1.93	0.21	38.70	0.07	0.31	4.46
Costa Mesa	111,635	51.12	35.36	1.39	0.11	9.06	0.38	0.09	2.50
Santa Ana	331,266	9.15	78.58	0.99	0.14	10.35	0.18	0.06	0.55
Study Area Census Tracts									
626.21	5,496	52.82	18.20	0.44	0.00	14.25	0.00	10.08	4.22
524.10	5,557	31.24	28.63	2.39	0.00	14.92	0.00	20.59	2.23
525.14	6,000	54.53	11.48	0.48	0.00	31.30	0.00	0.40	1.80
525.17	10,871	39.73	8.21	7.45	0.00	38.05	0.00	0.79	5.77
525.18	4,061	55.53	7.81	0.91	0.00	30.39	0.00	0.37	5.00
525.19	4,231	55.97	5.32	2.34	0.00	26.66	0.40	6.03	3.29
525.20	3,384	53.72	8.42	0.00	0.00	29.93	0.00	1.33	6.59
525.23	4,086	43.91	7.51	0.95	0.67	41.31	0.00	1.35	4.06
626.11	4,667	37.90	11.59	7.63	0.00	38.63	0.00	1.22	3.02
626.12	8,084	60.85	7.01	0.00	0.00	29.60	0.00	0.72	1.82
626.04	14,850	55.12	6.13	0.15	0.00	33.00	0.48	1.11	4.01
626.30	1,597	69.19	0.25	0.38	0.00	25.17	0.00	0.00	5.01
626.10	6,836	46.55	10.18	1.46	0.00	33.25	0.16	4.67	3.73
755.15	15,681	4.76	39.20	2.67	0.13	28.52	0.32	20.53	3.95
Average*	6,814	42.32	14.86	2.17	0.05	30.33	0.16	6.29	3.84
*The average is specific to the study area only and does not include Orange County, Irvine, Costa Mesa, and Santa Ana.									

Source: U.S. Census Bureau, 2014.

Income and Poverty

Income and poverty status can also be defining factors of a community's character and cohesion because lifestyle choices that tend to prompt interaction and build community, such as schooling and education, shopping, employment, recreation, community service utilization, and other activities, are often determined by financial status. Table 2.1.4-3 shows the median household income and percent of the population below the poverty level for the study area. Figure 2.1.4-2 shows the range of median household incomes for each of the tracts in the study area.

Table 2.1.4-3. Median Household Income and Population below Poverty Level in the Study Area

Jurisdiction/Census Tract	Median Household Income	Percent of Population below Poverty Level
Orange County	\$75,998	12.80
Irvine	\$91,999	12.40
Costa Mesa	\$66,491	15.10
Santa Ana	\$52,519	22.10
Study Area Census Tracts		
626.21	\$82,883	7.17
524.10	\$69,147	3.37
525.14	\$80,644	14.38
525.17	\$101,548	8.69
525.18	\$87,083	12.24
525.19	\$90,396	10.28
525.20	\$101,926	5.38
525.23	\$93,542	11.26
626.11	\$51,532	38.85
626.12	\$81,013	13.98
626.04	\$110,468	6.53
626.30	\$109,118	3.19
626.10	\$77,536	19.70
755.15	\$75,523	11.69
Average*	\$87,371	11.64
*The average is specific to the study area only and does not include Orange County, Irvine, Costa Mesa, and Santa Ana.		

Source: U.S. Census Bureau, 2014.

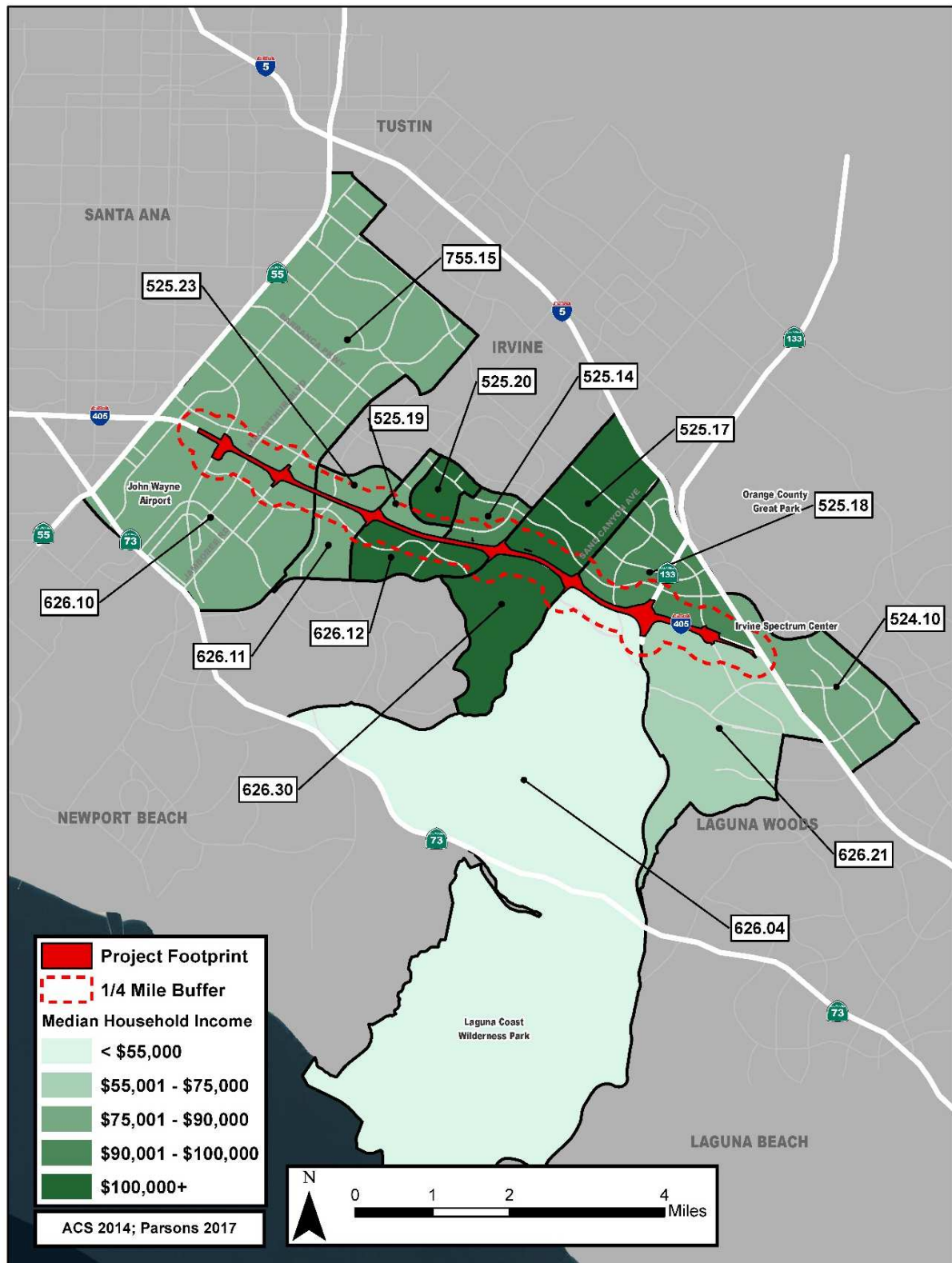


Figure 2.1.4-2. Median Household Income in the Study Area

As shown in Table 2.1.4-3, with the exception of Census Tracts 626.11 and 524.10, all other Census tracts in the study area have median household incomes above \$75,000, roughly equivalent to the median household income in Orange County. The low-income threshold, as established by the Department of Health and Human Services poverty guidelines, is \$24,600 for a family of four in 2016. Median household incomes for the study area jurisdictions and Census tracts are well above this established threshold. In addition, with the exception of Santa Ana and Census Tracts 626.10 and 626.11, poverty rates are relatively low in the study area.

Age

Age is an important indicator of a community's character. Certain age groups, particularly the elderly, tend to be more active in their communities. The median age of the study area and applicable jurisdictions is shown in Table 2.1.4-4

Table 2.1.4-4. Median Age in the Study Area

Jurisdiction/Census Tract	Median Age (Years)	Percent of Population over Age 65
Orange County	36.7	12.40
Irvine	34.0	9.50
Costa Mesa	33.6	9.00
Santa Ana	29.7	7.20
Study Area Census Tracts		
626.21	42.1	18.23
524.10	39.9	19.42
525.14	39.8	15.47
525.17	33.9	6.16
525.18	33.1	3.18
525.19	34	5.81
525.20	42.4	16.34
525.23	38.1	9.40
626.11	25.8	7.69
626.12	42	18.09
626.04	39.2	10.46
626.30	52.8	24.48
626.10	31.1	8.76
755.15	33.5	6.42
Average*	36.7	10.86
*The average is specific to the study area only and does not include Orange County, Irvine, Costa Mesa, and Santa Ana.		

Source: U.S. Census Bureau, 2014.

Median age in the study area is a little less than the rest of Orange County. Some Census tracts in the study area – 626.21, 524.10, 525.14, 525.20, 626.12, and 626.30 – show fairly high percentages of population over age 65 (between 15 and 24 percent), especially compared to the local jurisdictions. This may indicate the potential for higher levels of community cohesion in these tracts.

Housing

Long-term residents are more likely to feel connected to and invested in their respective communities compared to a more transient population. Furthermore, a community where homeownership is high is more likely to have a greater sense of community cohesion. Transportation projects have the potential to impact a community's housing market, thus indirectly affecting the character and cohesion of a community, either temporarily or permanently. Table 2.1.4-5 shows some key housing characteristics of the study area.

Table 2.1.4-5. Housing Characteristics in the Study Area

Jurisdiction/ Census Tract	Total Housing Units	Occupied Housing Units	Percent Occupied	Percent Owner- Occupied Units	Percent Moved in Prior to 2000
Orange County	1,058,466	1,002,285	94.70%	58.20%	33.00
Irvine	87,934	83,321	94.80	49.20	20.20
Costa Mesa	42,960	40,505	94.30	39.80	26.80
Santa Ana	77,149	74,437	96.50	45.40	32.30
Study Area Census Tracts					
626.21	2,295	2,105	91.72	67.36	25.84
524.10	2,103	1,992	94.72	68.27	31.73
525.14	2,197	2,197	100.00	50.02	36.50
525.17	4,333	3,951	91.18	49.03	13.95
525.18	2,708	2,366	87.37	6.59	0.00
525.19	1,662	1,532	92.18	66.32	30.35
525.20	1,353	1,311	96.90	74.14	33.64
525.23	1,568	1,471	93.81	45.89	29.16
626.11	1,839	1,802	97.99	18.09	12.04
626.12	2,994	2,927	97.76	63.61	37.85
626.04	6,580	6,246	94.92	59.13	13.21
626.30	782	742	94.88	78.71	40.57
626.10	4,694	3,812	81.21	21.12	1.31
755.15	6,090	5,682	93.30	32.47	9.75
Average*	2,942	2,724	92.57	43.08	18.14
*The average is specific to the study area only and does not include Orange County, Irvine, Costa Mesa, and Santa Ana.					

Source: U.S. Census Bureau, 2014.

As shown in Table 2.1.4-5, on average more than 92 percent of the study area housing units are occupied, which is slightly less than the average for surrounding jurisdictions. Except for Census Tracts 525.18 and 626.10, all other study area Census tracts have occupancy rates of more than 90 percent.

Of the existing units in the study area, approximately 43 percent of the study area housing units are owner occupied. Purchasing a home is making an investment in the community, and a greater prevalence of homeownership frequently results in increased participation in the community; therefore, homeownership rates are a strong indicator of community cohesion. Compared to the related jurisdictions, the high homeownership in the study area could indicate a higher sense of belonging to the community.

In total, slightly more than 18 percent of the study area housing units were occupied prior to 2000. This is consistent with the recent escalation in growth in the Irvine area. The length of tenure indicates that the community may still be establishing itself and developing its character and identity.

Single-person households tend to correlate with lower cohesion compared to communities composed of households with two or more people. The average household size in the study area is lower than the County and study area city averages. The average household size in the study area is approximately 2.56 for owner-occupied and 2.43 for renter-occupied housing units. Table 2.1.4-6 shows average household sizes of the study area.

Table 2.1.4-6. Average Household Sizes in the Study Area

Jurisdiction/Census Tract	Average Household Size of Owner-Occupied Units	Average Household Size of Renter-Occupied Units
Orange County	3.01	3.07
Irvine	2.80	2.54
Costa Mesa	2.76	2.67
Santa Ana	4.46	4.32
Study Area Census Tracts		
626.21	2.50	2.78
524.10	2.59	3.18
525.14	2.60	2.86
525.17	2.69	2.81
525.18	2.42	1.67
525.19	2.69	2.89

Table 2.1.4-6. Average Household Sizes in the Study Area

Jurisdiction/Census Tract	Average Household Size of Owner-Occupied Units	Average Household Size of Renter-Occupied Units
525.20	2.28	3.43
525.23	2.80	2.76
626.11	1.94	2.73
626.12	2.61	3.02
626.04	2.57	2.10
626.30	2.07	2.44
626.10	1.48	1.88
755.15	3.09	2.54
Average*	2.56	2.43
*The average is specific to the study area only and does not include Orange County, Irvine, Costa Mesa, and Santa Ana.		

Source: U.S. Census Bureau, 2014.

As shown in Table 2.1.4-7, median home prices are approximately \$629,549, almost \$100,000 higher than the rest of Orange County. In addition, median rent in the study area is \$1,780, which is higher than all of the study area jurisdictions with the exception of Irvine. These indicators suggest a relatively affluent area in relation to the county and surrounding jurisdictions.

Table 2.1.4-7. Housing Values in the Study Area

Jurisdiction/ Census Tract	Owner-Occupied Units	Median Home Price	Renter-Occupied Units	Median Contract Rent
Orange County	583,146	\$532,300	408,888	\$1,522
Irvine	41,024	\$662,200	41,416	\$1,863
Costa Mesa	16,123	\$586,800	24,046	\$1,551
Santa Ana	33,812	\$343,000	40,044	\$1,307
Study Area Census Tracts				
626.21	1,418	\$385,700	687	\$1,968
524.10	1,360	\$449,500	632	\$1,782
525.14	1,099	\$660,400	1,098	\$1,652
525.17	1,937	\$502,300	2,014	\$2,001
525.18	156	\$604,500	2,210	\$1,902
525.19	1,016	\$461,900	516	\$1,796

Table 2.1.4-7. Housing Values in the Study Area

Jurisdiction/ Census Tract	Owner-Occupied Units	Median Home Price	Renter-Occupied Units	Median Contract Rent
525.20	972	\$646,600	339	\$2,001
525.23	675	\$712,400	796	\$1,938
626.11	326	\$536,600	1,476	\$1,720
626.12	1,862	\$608,100	1,065	\$1,999
626.04	3,693	\$1,000,001	2,553	\$1,845
626.30	584	\$780,100	158	\$2,001
626.10	805	\$447,700	3,007	\$1,808
755.15	1,845	\$448,300	3,837	\$1,434
Average*	1,268	\$629,549	1,456	\$1,780
*The average is specific to the study area only and does not include Orange County, Irvine, Costa Mesa, and Santa Ana.				

Source: U.S. Census Bureau, 2014.

Economic Conditions

Community cohesion is often created through frequent personal contact. Oftentimes, this occurs at places of business. Shopping and employment centers also serve as epicenters for community interaction.

Occasionally, transportation projects may either bolster or detrimentally affect a study area's economy by serving as a catalyst for economic growth, removing businesses and employment opportunities, improving or restricting access to existing businesses, or displacing the labor force.

Table 2.1.4-8 shows the labor force, unemployment, and per capita income statistics for the study area and related jurisdictions. Unemployment levels are also a strong indicator of an area's economic vitality. As shown in Table 2.1.4-8, unemployment rates are higher than the rest of the study area; however, the study area per capita income, which is at \$46,627, is higher than the per capita income average among the affected local jurisdictions.

Table 2.1.4-8. Economic Conditions in the Study Area

Jurisdiction/ Census Tract	Population 16 Years or Over	Percentage in Labor Force	Percentage Unemployed	Per Capita Income
Orange County	2,444,040	66.40	5.80	\$34,416
Irvine	184,586	65.20	4.70	\$43,456
Costa Mesa	90,334	74.00	6.50	\$33,342
Santa Ana	245,074	67.40	6.70	\$16,345
Study Area Census Tracts				
626.21	4,733	68.03	6.06	\$37,759
524.10	4,654	67.15	6.75	\$34,736
525.14	4,671	65.72	10.33	\$39,332
525.17	8,201	73.58	10.14	\$41,680
525.18	3,634	79.77	4.48	\$57,181
525.19	3,182	72.56	7.36	\$38,021
525.20	2,737	62.00	5.19	\$46,703
525.23	3,349	67.12	7.52	\$41,465
626.11	3,914	58.48	10.83	\$29,955
626.12	6,886	57.14	11.28	\$36,612
626.04	11,347	68.86	5.59	\$75,509
626.30	1,346	61.59	7.72	\$70,808
626.10	6,459	65.71	6.64	\$61,704
755.15	12,465	79.38	9.78	\$34,829
Average*	5,541	69.10	8.09	\$46,628
*The average is specific to the study area only and does not include Orange County, Irvine, Costa Mesa, and Santa Ana.				

Source: U.S. Census Bureau, 2014.

Table 2.1.4-9 shows employment in each of the jurisdictions in 2008, as well as the projected employment for 2020 and 2035 (SCAG 2008). Among the cities in the study area, the City of Irvine is anticipated to see the largest percentage of growth, almost three times the projections for Orange County as a whole. The other two cities in the study area are projected to decline in employment opportunities through 2035.

Table 2.1.4-9. Employment Projections in the Study Area

Jurisdiction/ Census Tract	2012	2020	2035	2040	Percent Change (2012 – 2040)
Unincorporated Orange County	20,700	30,000	39,700	41,200	99
Irvine	224,400	280,600	314,000	320,000	43
Costa Mesa	84,400	89,600	92,700	93,200	10
Santa Ana	154,800	160,600	165,200	166,000	7

Source: U.S. Census Bureau, 2014.

Community Services

Community services and facilities are an important aspect of neighborhood identity and can be critical resources within the community. Table 2.1.4-10 lists some primary community services and facilities within 0.5 mile of the project limits.

Table 2.1.4-10. Community Facilities and Public Services in the Study Area

Property Name	Location
Fire	
Orange County Fire Authority Station 28	6640 Alton Parkway, Irvine, CA 92618
Orange County Fire Authority Station 33	374 Paularino Avenue, Costa Mesa, CA 92626
Orange County Fire Authority Station 47	47 Fossil Road, Irvine, CA 92612
Hospital	
Hoag Hospital Irvine	16200 Sand Canyon Avenue, Irvine, CA 92618
Kaiser Permanente	6640 Alton Parkway, Irvine, CA 92618
School	
Westpark Elementary School	25 San Carlo, Irvine, CA 92614
Culverdale Elementary School	2 Paseo Westpark, Irvine, CA 92614
Westpark Montessori	11 San Leandro, Irvine, CA 92614
University Park Elementary	4572 Sandburg Way, Irvine, CA 92612
Meadow Park Elementary School	50 Blue Lake S, Irvine, CA 92614
South Lake Middle School	655 W. Yale Loop, Irvine, CA 92614
Rancho San Joaquin Middle School	4861 Michelson Drive, Irvine, CA 92612
Springbrook Elementary School	655 Springbrook N, Irvine, CA 92614
Oak Creek Elementary School	1 Dovecreek, Irvine, CA 92618
Alderwood Elementary School	2005 Knollcrest, Irvine, CA 92603

Table 2.1.4-10. Community Facilities and Public Services in the Study Area

Property Name	Location
Cal State Fullerton: Irvine Campus	3 Banting, Irvine, CA 92618
Recreational Resource	
Quail Hill Trail	34 Shady Canyon, Irvine, CA 92603
Quail Hill Loop Trail	34 Shady Canyon Trail, Irvine, CA 92603
Freeway Trail	North of I-405, runs east along I-405; trail runs north at Jeffrey Road Trail
San Diego Creek Trail	South of I-405, runs north and loops southeast, past I-405
Jeffrey Open Space Trail	Runs along Jeffrey Road going northeast and ends at Portola Parkway
University Community Trails	University Park, Irvine, CA 92612
Shady Canyon Trail Bikeway	South of I-405; north of Quail Hill Trailhead, runs southwest along Shady Canyon Drive
Park/Recreational Resource	
Rancho San Joaquin Golf Course	One Ethel Coplen Way, Irvine, CA 92612
Rancho San Joaquin Community Park	3 Ethel Coplen Way, Irvine, CA 92612
San Mateo Park	3370 Main Street, Irvine, CA 92614
Culverdale Wilderness Park	North of I-405, south of Claremont Street, Irvine, CA
Westpark Village One Association Park	3754 Hamilton Street, Irvine, CA 92614
San Leandro Park	12 Paseo Westpark, Irvine, CA 92614
Timber Run Park	45 Timber Run, Irvine, CA 92614
Blue Lake Park	1 Summerstone, Irvine CA 92614
Springacre Park	34 Springacre Irvine, CA 92614
Meadow Park	50 Blue Lake S, Irvine CA 92614
Echo Run Park	29 Echo Run, Irvine, CA 92614
Clearbrook Park	6 Clearbrook Irvine CA 92614
Village Park	4552 Michelson Drive, Irvine, CA 92612
University Community Park	1 Beech Tree Lane, Irvine, CA 92612
Dave Robins Park	5075 Tamarack Way, Irvine, CA 92612
William R. Mason Regional Park	18712 University Drive, Irvine, CA 92612
Strawberry Farms Golf Club	11 Strawberry Farm Road, Irvine, CA 92612
Wintermist Park	2 Springbrook S, Irvine, CA 92614
Woodflower Park	649 Springbrook N, Irvine, CA 92614
Briarglen Park	651 Springbrook N, Irvine, CA 92614
Springbrook Park	Springbrook North, Irvine, CA 92614
Irvine Open Space Preserve - Quail Hill Trailhead	34 Shady Canyon Trail, Irvine, CA 92603

Table 2.1.4-10. Community Facilities and Public Services in the Study Area

Property Name	Location
Royal Oak Park	16492 Royal Oak, Irvine, CA 92612
Dovecreek Park	3 Dovecreek, Irvine, CA 92618
Ravencreek Park	15521 Valley Oak, Irvine, CA 92618
Valley Oak Park	16001 Valley Oak Drive, Irvine CA 92618
Quail Hill Community Park	35 Shady Canyon Drive, Irvine, CA 92603
The Commons Park	Passage & Seasons, Irvine, CA 92603
Knollcrest Park	2065 Knollcrest Irvine, CA 92603

Environmental Consequences

Alternative 1 (No Build)

Under Alternative 1 (No Build), no new planned improvements would be introduced to I-405 that are associated with this project. Under this alternative, the project would not be constructed, and the sense of place and community character would be affected by worsening congestion for adjacent neighborhood residents, possibly impacting homeownership and/or occupancy. Potential indirect impacts to the regional economy and/or business activity could result from the continued degradation of traffic flow and capacity associated with congestion on I-405.

Build Alternative 2 (Preferred Alternative) and Build Alternative 3

The project would not directly or indirectly result in the construction of new housing that would cause a direct change in population or community composition, nor would it directly or indirectly have an adverse impact on population characteristics, housing mixture, economic conditions, or supporting community services within the study area. Any potential changes to the communities that comprise the study area would result from planned county or city growth and would occur with or without the project.

Implementation of Alternative 2 or Alternative 3 would bring residents and businesses closer to the freeway; however, this would not affect community character and cohesion because the freeway is already an existing facility. The improvements for Alternative 2 and Alternative 3 are mostly within the ROW of an existing highway facility. Community character, sense of place, and business activity would be improved because the build alternatives would reduce existing and projected future traffic congestion along I-405 and would provide improved mobility for the existing communities.

In addition, because I-405 is an existing transportation facility, the project would not divide any existing neighborhoods or communities, separate residents from community facilities, directly encourage or discourage growth, create negative changes to existing quality of life, or increase urbanization or isolation; therefore, no long-term direct or indirect adverse effects on community cohesion would occur with implementation of the build alternatives.

Construction (Short-Term) Impacts

Project improvements have the potential to result in short-term effects to neighborhood character. Construction includes activities that would temporarily generate noise and dust, involve vegetation/tree removal, and require temporary road detours/closures. Due to the time required for tree maturity, neighborhoods, households, and occupants in the residential area (adjacent to I-405 primarily between the Sand Canyon Avenue OC to the San Diego Creek Channel south of Jamboree Road) may experience a temporary impact to community character with the removal, replacement, and reestablishment of 181 and 217 trees for Alternative 2 and Alternative 3, respectively; however, measures are in place to minimize the effect to community character. (See Avoidance, Minimization, and/or Mitigation Measures, in Section 2.1.7, Visual/Aesthetics, of this IS/EA.)

During project construction, full closure of the San Diego Creek Trail and Freeway Trail for a total duration of less than 90 days would be necessary for the widening of the San Diego Creek Bridge (Reach 1 and 2) and soundwall construction adjacent to the northbound Culver Drive off-ramp, respectively. This closure is necessary to protect the safety of trail users and construction workers. A temporary detour is proposed and would be part of a Transportation Management Plan (TMP) developed during the Plans, Specifications and Estimates (PS&E) phase of the project. At the completion of construction, the trail segment would be restored to its original alignment and to a condition as good as or better than prior to the project.

Community character is often built by frequent interaction with neighbors, which can frequently occur at business centers while shopping, dining, or working. Access to businesses situated in the immediate vicinity of the project corridor could be temporarily affected due to road detours/closures. To minimize the short-term impact of road detours and temporary road closures, implementation of a TMP would reduce project-related temporary impacts to community character, sense of place, and business activity. (See Avoidance, Minimization, and/or Mitigation Measures, below.) Coordination with local jurisdictions and public transportation providers would continue through construction to identify public transit routes and emergency service routes that serve emergency facilities. Emergency service routes would be maintained during construction or alternate routes provided. Additional coordination with public transportation providers would provide detour information.

Avoidance, Minimization, and/or Mitigation Measures

Community disruption as a result of construction activities would be temporary and minimized by implementing measures VA-1 through VA-5, VA-12, and VA-17 through VA-19 (see Section 2.1.7, Visual/Aesthetics) and a TMP as required by Measure T-1 (see Section 2.1.6, Traffic and Transportation), as well as the measures in Section 2.2.6, Air Quality, and Section 2.2.7, Noise.

Additionally, because community character and cohesion are related to frequent interaction with neighbors, which can frequently occur at business centers while shopping, dining, or working, the following measure will be required to minimize project construction effects. Standardized measures which are employed on most, if not all, Caltrans projects are indicated in bold.

COM-1 Business access will be maintained at all times during construction.

2.1.4.2 Relocations and Real Property Acquisition

Regulatory Setting

Caltrans' Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 CFR Part 24. The purpose of the Relocation Assistance Program is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (United States Code [U.S.C.] 42 § 2000d, *et seq.*). Please see Appendix B for a copy of Caltrans' Title VI Policy Statement.

Affected Environment

This section has been prepared based on the analysis and findings presented in the *Final Relocation Impact Memorandum* (July 2018).

Existing land uses in the project vicinity comprise of commercial, general office, industrial, and multi-family residential uses. John Wayne Airport is located east and west of I-405.

Environmental Consequences

Alternative 1 (No Build)

Under the No Build Alternative, there is no construction involved; therefore, no full or partial fee acquisition, relocation, or displacement of businesses or households would occur as a result of the No Build Alternative.

Build Alternative 2 (Preferred Alternative) and Build Alternative 3

No full fee acquisition is required, and no relocation or displacement of businesses or households would occur.

Alternatives 2 and 3 would require partial fee acquisition of 850 square feet (0.02 acre) from one commercial property located on 2 APNs (466-083-13 and 466-083-14) adjacent to I-405 just south of Laguna Canyon Road to accommodate the NB Sand Canyon Road bypass off-ramp. The area subject to partial fee acquisition is generally the back slope of the parking lot serving this commercial property. The partial fee acquisition would affect a small sliver of landscaping and a concrete v-ditch within the property which is improved with a bank building adjacent to the existing State right of way (I-405) limits. No existing parking spaces would be removed because of this partial fee acquisition.

Table 2.1.4-11. Fee Acquisition Impacts under Alternatives 2 and 3

Assessor Parcel Number	Land Use	Location	Owner	Permanent Impacts (acre)	Full or Partial Fee Acquisition
466-083-13	General Office	Northeast of I-405/ Laguna Canyon Road	Bank Western Financial Savings	0.002	Partial
466-083-14	General Office	Northeast of I-405/ Laguna Canyon Road	Bank Western Financial Savings	0.018	Partial

Source: Parsons, 2017.

Construction (Short-Term) Impacts

Areas of temporary impacts associated with TCEs for Alternatives 2 and 3 are approximately 0.70 acre and 0.95 acre, respectively.

Avoidance, Minimization, and/or Mitigation Measures

The build alternatives would not require relocation or displacement of businesses or households. No avoidance, minimization, and/or mitigation measures are required.

2.1.4.3 Environmental Justice

Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President William J. Clinton on February 11, 1994. This EO directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2017, this was \$24,600 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. Caltrans' commitment to upholding the mandates of Title VI is demonstrated by its Title VI Policy Statement, signed by the Director, which can be found in Appendix B of this document.

Affected Environment

The environmental justice analysis was conducted using Census tract information from the 2010 Census for the referenced jurisdictions and Census tracts located within a 0.25-mile radius of the proposed project. The following two metrics, shown in Table 2.1.4-12, were used to evaluate for minority and low-income environmental justice populations in the study area: (1) Percentage of race/ethnicity in the study area Census tracts and (2) Median household income in the study area Census tracts.

Table 2.1.4-12. Race, Ethnicity, Poverty Level, and Income in the Study Area

Census Tract	Race and Ethnicity %								Household	
	African American	Asian	American Indian/ Alaskan Native	Native Hawaiian/ Pacific Islander	Other	Two or more Races	Hispanic or Latino	White, Non-Hispanic	Below Poverty Level %	Median Income
626.21	0.44	14.25	0	0	10.08	4.22	18.2	52.82	4.99	\$82,883
524.10	2.39	14.92	0	0	20.59	2.23	28.63	31.24	2.41	\$69,147
525.14	0.48	31.3	0	0	0.4	1.8	11.48	54.53	14.11	\$80,644
525.17	7.45	38.05	0	0	0.79	5.77	8.21	39.73	6.93	\$101,548
525.18	0.91	30.39	0	0	0.37	5	7.81	55.53	11.24	\$87,083
525.19	2.34	26.66	0	0.4	6.03	3.29	5.32	55.97	7.77	\$90,396

Table 2.1.4-12. Race, Ethnicity, Poverty Level, and Income in the Study Area

Census Tract	Race and Ethnicity %								Household	
	African American	Asian	American Indian/Alaskan Native	Native Hawaiian/Pacific Islander	Other	Two or more Races	Hispanic or Latino	White, Non-Hispanic	Below Poverty Level %	Median Income
525.20	0	29.93	0	0	1.33	6.59	8.42	53.72	5.64	\$101,926
525.23	0.95	41.31	0.67	0	1.35	4.06	7.51	43.91	8.23	\$93,542
626.11	7.63	38.63	0	0	1.22	3.02	11.59	37.9	27.75	\$51,532
626.12	0	29.6	0	0	0.72	1.82	7.01	60.85	12.78	\$81,013
626.04	0.15	33	0	0.48	1.11	4.01	6.13	55.12	7.75	\$110,468
626.30	0.38	25.17	0	0	0	5.01	0.25	69.19	4.58	\$109,118
626.10	1.46	33.25	0	0.16	4.67	3.73	10.18	46.55	17.16	\$77,536
755.15	2.67	28.52	0.13	0.32	20.53	3.95	39.2	4.76	8.62	\$75,523
Average	2.17	30.33	0.05	0.16	6.29	3.84	14.86	42.32	10.10	\$87,371

Source: U.S. Census Bureau, 2014.

As shown in Table 2.1.4-12, the average median income of the study area is \$87,371, which is well above the Department of Health and Human Services (HHS) poverty threshold for an average household of four. Census Tract 626.11 has the highest fraction of households living below the federal poverty level at 27.75 percent and the lowest median income of \$51,532. As a whole, the income level in Census Tract 626.11 is still well above the federal poverty level.

The study area as a whole would not be categorized as being a predominantly minority population. The average of 14 Census tracts within the study area include 42 percent white populations and 58 percent non-white populations. When considering race within each individual Census tract, the two most predominant populations are White and Asian, which comprise more than 72 percent of the population in the study area. Minority populations do not exceed more than 40% of the population in any of the study area census tracts.

Means of Transportation to Work

Commuters in the study area have a variety of travel choices, including driving an automobile alone, carpooling, using public transit, or other means of travel (e.g., taxis, motorcycles, bicycles, and walking). Table 2.1.4-13 presents commuting statistics of residents in the study area.

Table 2.1.4-13. Commuting to Work in the Study Area

Jurisdiction/Census Tract	Drive Alone to Work (%)	Workers with No Vehicle Availability (%)
Orange County	78.10	2.10
Irvine	79.60	1.20
Costa Mesa	76.60	2.80
Santa Ana	74.10	3.10
Study Area Census Tracts		
626.21	83.44	0.55
524.10	82.05	0.84
525.14	83.47	2.36
525.17	83.48	2.14
525.18	70.10	5.45
525.19	81.37	3.41
525.20	87.67	0.00
525.23	76.24	1.95
626.11	64.50	8.12
626.12	79.06	1.34
626.04	80.32	1.31
626.30	80.83	0.00
626.10	82.25	5.57
755.15	75.48	2.50
Average*	79.21	2.51
*The average is specific to the study area only and does not include Orange County, Irvine, Costa Mesa, and Santa Ana.		

Source: Parsons, 2017.

Table 2.1.4-13 shows that 79.21 percent of study area residents drive alone to work, on par with the rest of Irvine. In addition, only 2.51 percent of workers have no access to an automobile and thus are unable to access and take advantage of highway improvements with an automobile.

Public Outreach

Community outreach and participation have been integrated into the project development process from the outset, including alternatives development, extensive public and agency stakeholder involvement, and public scoping.

To maximize awareness and attendance of public information meetings, an extensive public communications campaign was developed and executed. Consistent with the spirit of Title VI, this public communications effort included outreach in several languages, including Spanish, Chinese, and Korean, all of which are extensively spoken in the project area. The target audience included residents and businesses in the project study area. Communications and outreach methods included, but were not limited to, briefings, print, and electronic notifications and targeted community outreach.

No minority or low-income populations that would be adversely affected by the proposed project have been identified as determined above. Therefore, this project is not subject to the provisions of EO 12898.

Environmental Consequences

Alternative 1 (No Build)

The No Build Alternative would not introduce any improvements to I-405 as part of this project. Under the No Build Alternative, the project would not be constructed, and congestion would continue to worsen for environmental justice populations and non-environmental justice populations without the proposed improvements.

Build Alternative 2 (Preferred Alternative) and Build Alternative 3

The build alternatives would not have any direct adverse land use, housing, or community long-term impacts because the project would not require the fee acquisition of any full residential property or full business property; therefore, it would not cause displacements within the area where low-income or minority populations may reside.

The project would not alter or impact public and community facilities. With implementation of a TMP, neither long-term operations nor short-term construction activities would impact access to neighborhood communities.

The project does not create, relocate, or remove any existing origins or destinations such as housing, employment centers, or retail centers. It is likely that commuters and other travelers currently using the I-405 corridor would continue to do so. The project would not directly or indirectly change the propensity for the overall population, minority populations, or low-

income populations to modify their destinations and general commute or travel patterns. Increased highway volumes are not likely to affect low-income or minority groups in a disproportionate manner because the benefits would be shared by all users, especially given the high proportion of residents who drive alone to work and have access to a vehicle. This project would lower travel times along the I-405 corridor, and regardless of income or minority status, users would benefit from this.

Avoidance, Minimization, and/or Mitigation Measures

Based on the above discussion and analysis, the build alternative(s) will not cause disproportionately high and adverse effects on any minority or low-income populations in accordance with the provisions of EO 12898. No further environmental justice analysis is required.